



Performance Measurement Baseline (PMB) Development and Analysis

Acquisition Insight Days

April 2009

Professor Kim Meyer



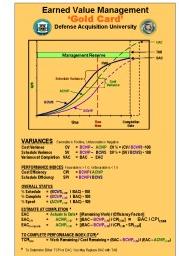
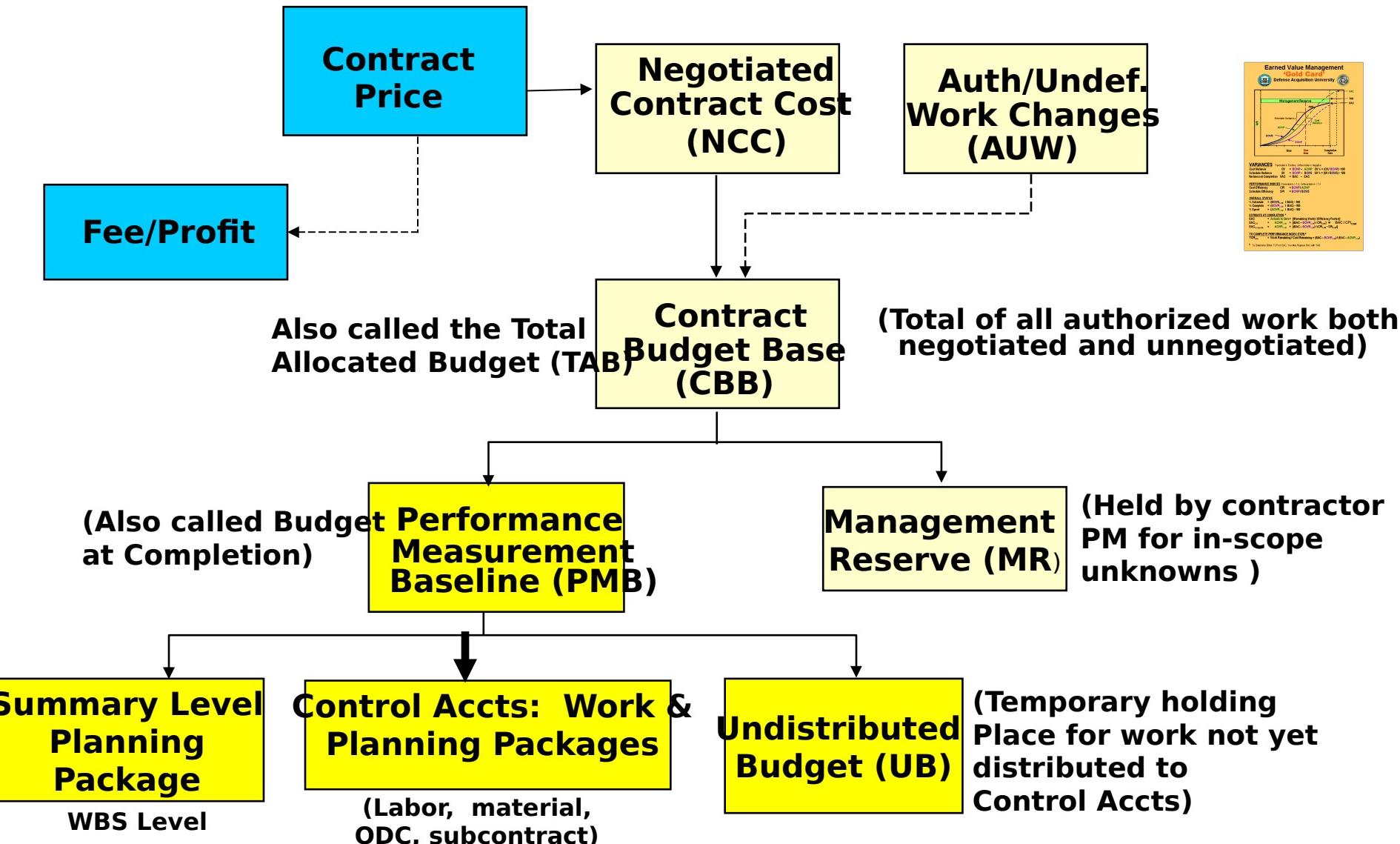
DAU EVMS POC

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PMB DEVELOPMENT

PMB Development - Budget Allocation --

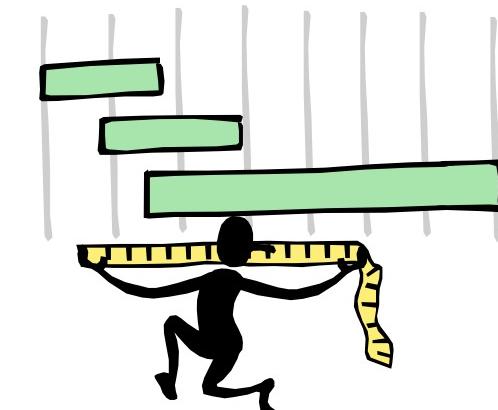


The Key to Integration



Cost
\$\$

Schedule



WBS



**Technical
Performance**

Risk



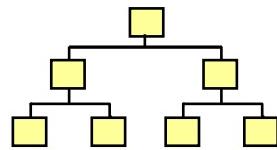


Performance Measurement Baseline Development Steps

PMB Development Steps

TECHNICAL
BASELINE

DEFINE THE WORK



WHAT?

CWBS / Dictionary
SOW / IMP/ SPECs

WHO?

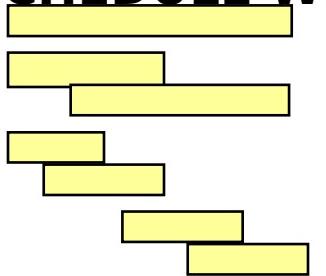
Responsibility Assignment Matrix
(RAM)
Subcontractor Management

WHEN?

Program Schedules / Network
Integrated Master Schedule (IMS)
Control Account /
Work package Plans

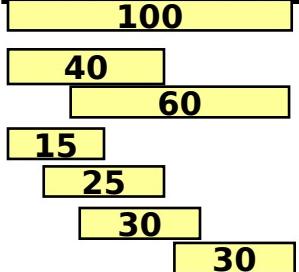
SCHEDULE
BASELINE

SCHEDULE WORK



BUDGET
BASELINE

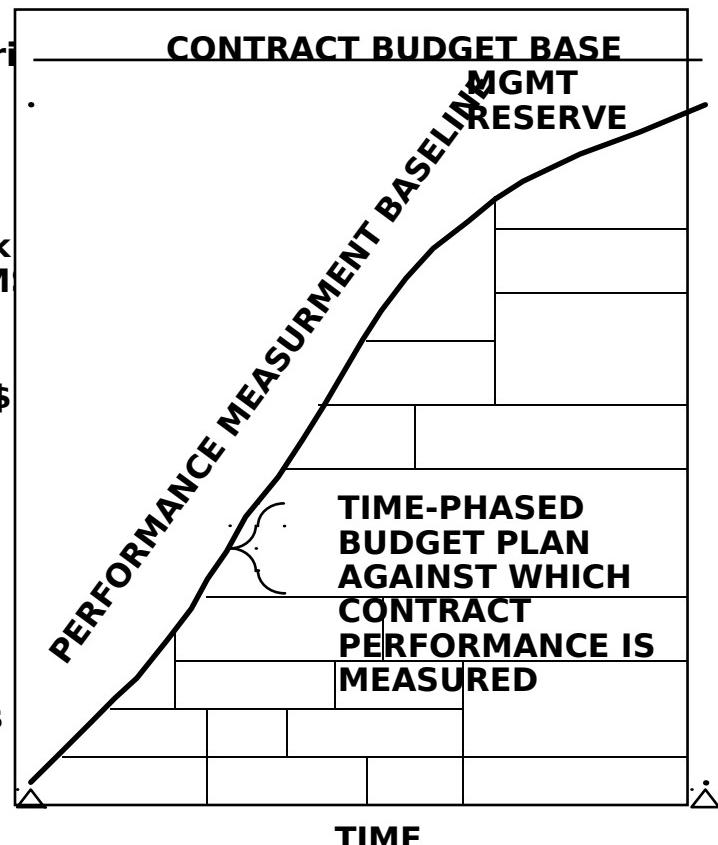
ALLOCATE RESOURCES



HOW MUCH?

Work / Budget Authorization
Control Account Plan
Budget Authorization Reports
Earned Value Methods
Valid Estimate at Completion

Performance Measurement Baseline (PMB) Development - *The Plan*



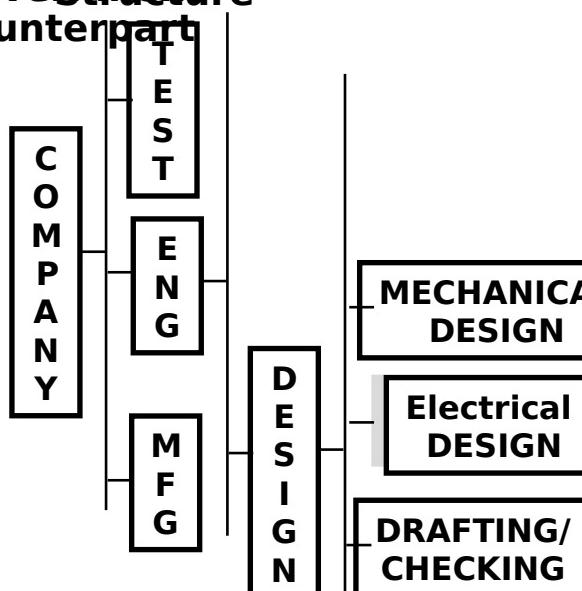
Integrated Planning Is a 3-step Process

Control Accounts

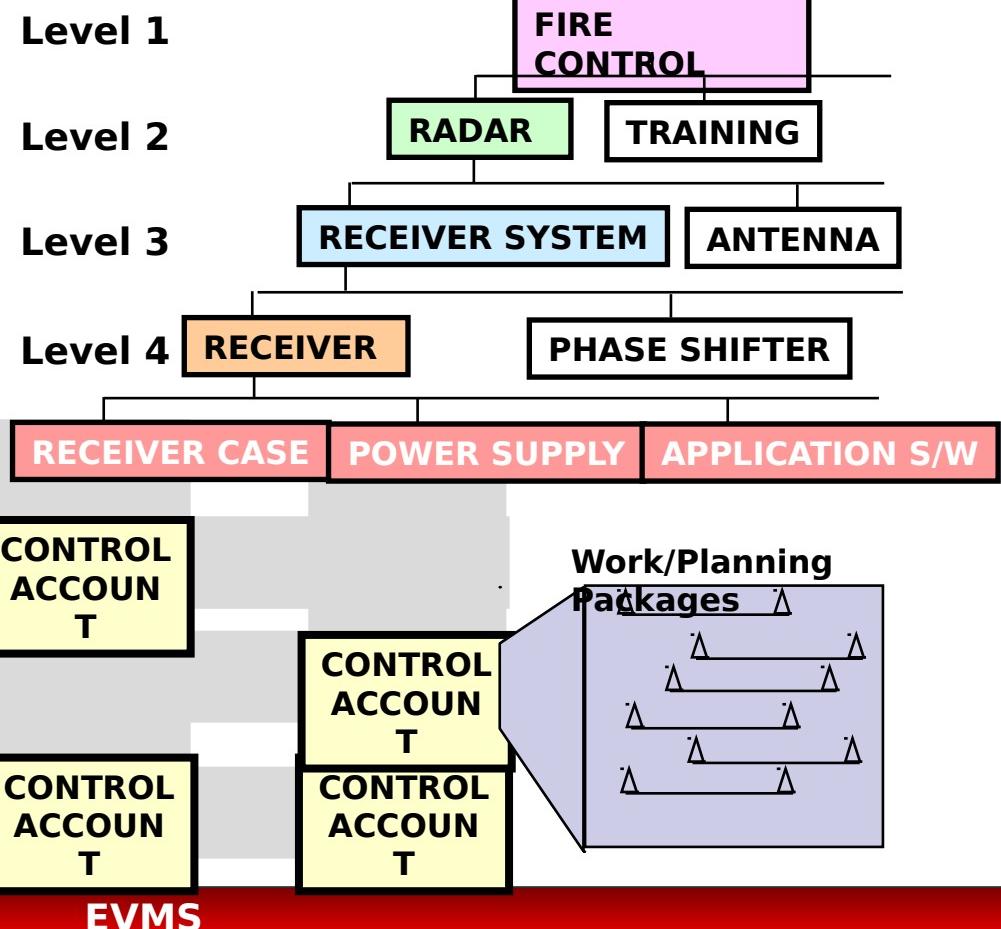
A Key Management Control Point

Control Accounts

- Lowest Level Of CWBS
- Control Account Manager (CAM) - Responsibility Assignment (Scope/ Schedule/Budget)
CAM (GCAM) counterpart
- Cost Collection (Actuals)
- Variance Analysis (SV; CV; VAC)
- ~~Organizational~~ should have a Government counterpart

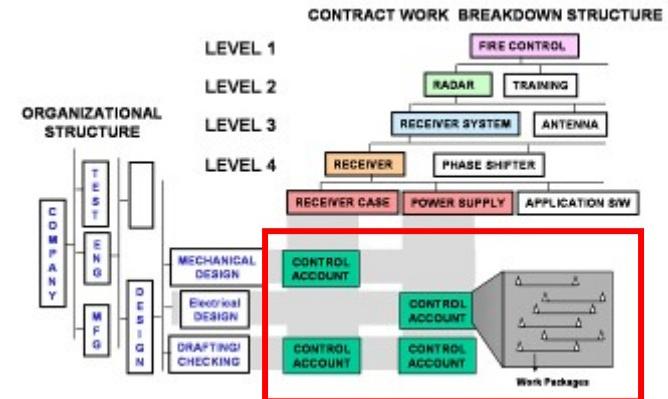


Work Breakdown Structure (MIL-HDBK-881)



The Control Account (PMB Step 1)

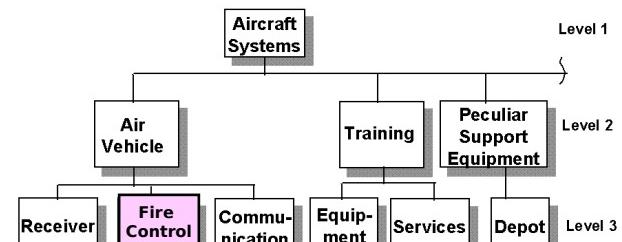
- All earned value is accomplished at the control account
 - BCWS is established
 - BCWP is determined
 - ACWP is collected
 - Variances are assessed
 - Estimates are revised
 - Workaround plans are devised
- In IPT organization structures, the control account may be tied to an IMP Significant Accomplishment or Accomplishment Criteria.
- **ANSI Definition** - A management control point at which budgets (resource plans) and actual costs are accumulated and compared to earned value for management purposes. A control account is a natural management point for planning and control since it represents the work assigned to one responsible organizational element on one program work breakdown structure element.



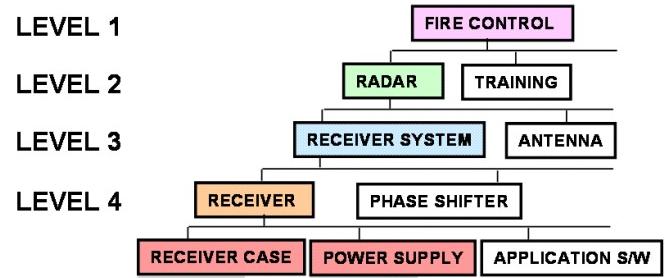
Identifying the Work Scope

PMB Step 1

- Acquisition Strategy and Request for Proposal Documents
 - Program Work Breakdown Structure & WBS Dictionary
 - Contract Line Items
 - Contract Specifications
 - Statement of Work / Statement of Objectives
- Contract Documents
 - Contract Work Breakdown Structure & Dictionary
 - Contract Statement of Work
 - Specification Tree
 - Integrated Master Plan



CONTRACT WORK BREAKDOWN STRUCTURE

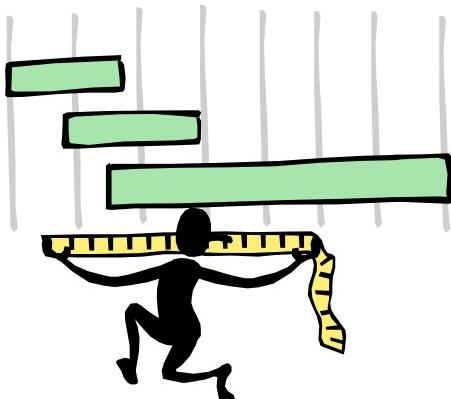


- Discrete or Measurable
 - specific end product or result
 - preferred category of work because objective
- Apportioned effort
 - dependent on other work, discrete tasks
 - measured as a factor, e.g., 10% of discrete task
- Level of Effort (LOE)
 - **NO MORE THAN 20% of budget as LOE**
 - has no specific product
 - measured by the passage of time, so...
 - No Schedule Variances are ever reported

Baseline Development

-- Scheduling (PMB Step 2) --

- **Schedule Characteristics**
 - Complete
 - Allocated Time For All WBS Elements
 - Formal
 - Everyone Uses Same Schedule (Configuration Control)
 - Traceable
 - Vertical (Master, Intermediate, Detail)
 - Horizontal (Between Tasks)
 - Sequence of Tasks, Interdependencies (network) identified
 - Critical Path clearly identified
 - Current!!! Requires Periodic Updates



Schedule Integration

MASTER SCHEDULE

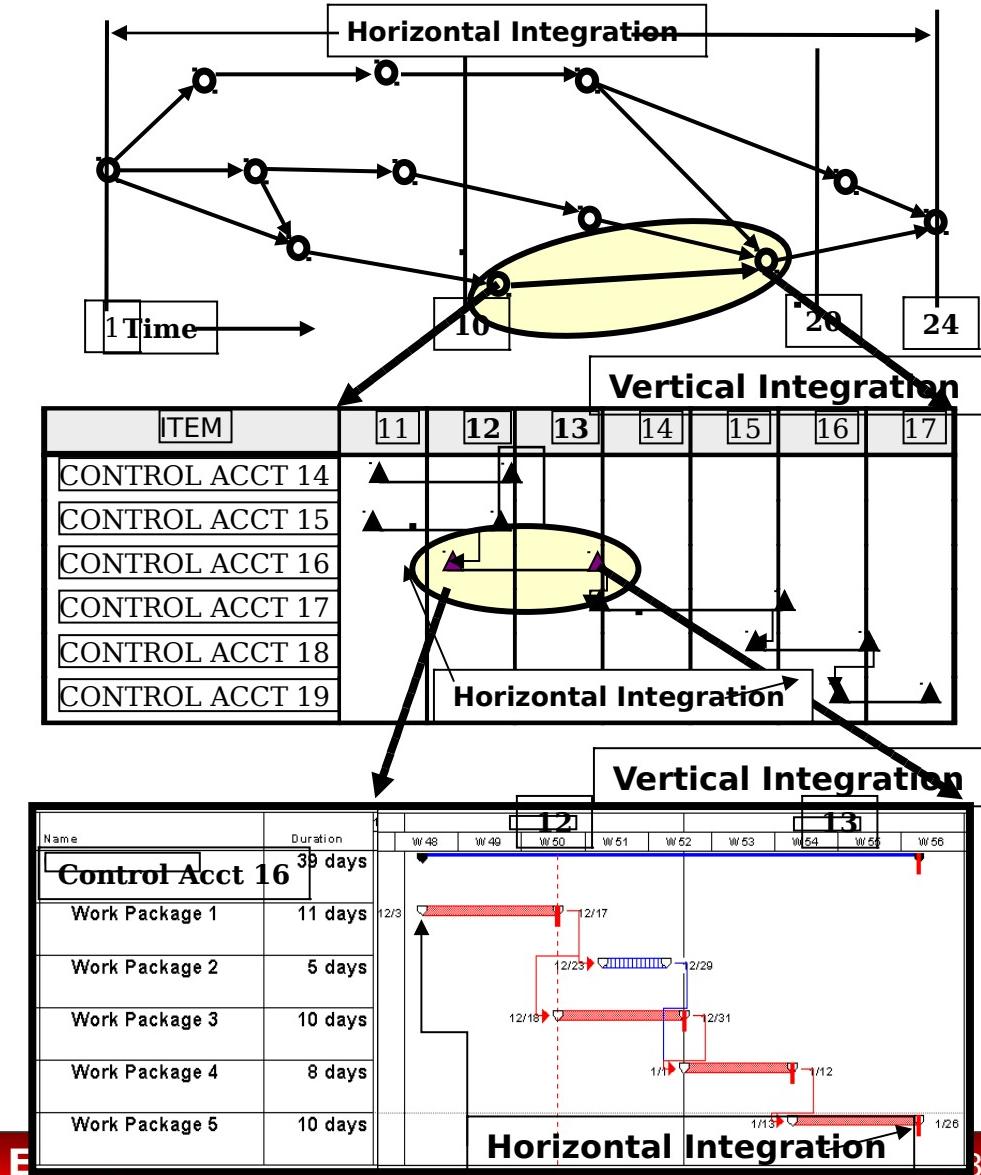
- Single Top Program Level Schedule
- Schedules IMP Program Elements
- Schedules Program and Contract Milestones
- Horizontally Integrated – Depicts task relationships among IMP Program Elements and Milestones

INTERMEDIATE LEVEL SCHEDULE

- Subordinate to Master Schedule scheduling a single or a limited number of Program Elements
- Schedules Associated EVMS Control Accounts
 - Schedules IMP Significant Accomplishment Milestones
 - Horizontally Integrated – Depicts task relationships among control accounts & significant accomplishments
 - Vertically Integrated – All schedule elements completed in time allocated to associated program level element

DETAIL LEVEL SCHEDULE

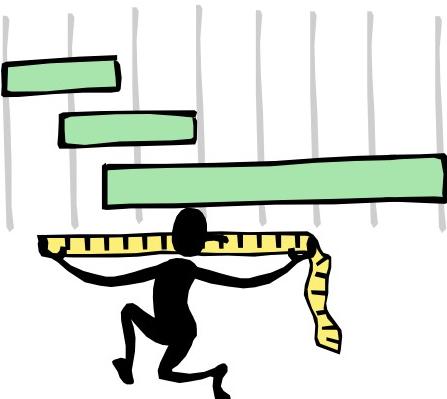
- Control Account Schedule
- Schedules IMP Accomplishment Criteria Milestones
- Horizontally Integrated – Depicts task relationships among Work Packages & Accomplishment Criteria
- Vertically Integrated – All detailed schedule work packages completed in time allocated to control account



Baseline Development

-- Resources (PMB Step 3)--

- **Resource Characteristics**
 - Complete
 - Allocated Resources For All WBS Elements
 - Resources aren't over or under-allocated
 - Formal
 - Amounts are formally authorized
 - Resources cover labor, material, and subcontracted efforts
 - EV Methods are applicable to type of effort
 - Funding is adequate
 - Current!!! Requires Periodic Updates





EVM Methods



PMB Development

- *Earned Value Methods --*

- **Purpose:**
 - Match Timing Of Actual Costs with Work Completion
- Should Be a Quantitative and Discrete Way to Measure the Work
- May Tie in With Success Criteria or Technical Measure
 - e.g., Successful Completion of a Specific Test, Reliability Growth Curve
- Work Categories and Earned Value Methods
 - Discrete
 - Apportioned
 - Level of Effort

- Correlates the BCWS and BCWP EV Variables
- Selected Earned Value Techniques
 - Discrete Measures
 - 0 - 100
 - Percent Start / Percent Finished
 - Percent Complete
 - Weighted Milestones
 - Weighted Milestones with Percent Complete
 - Units Completed
 - Equivalent Units
 - Apportioned Effort
 - Level of Effort (LOE)

<u>METHOD</u>	<u>LENGTH</u>	<u>BCWP CALCULATION</u>
0 / 100 %	1 Mth	
50 / 50 %	2-3 Mths	
% Complete	Varies	
Variant Milestone Level of Effort	3 or More Mths	
Apportioned Effort	Varies	
	Varies	

- Objective Technique tied to discrete completion task
- No BCWS or BCWP tied to start milestone
- All BCWS and BCWP tied to finish milestone
- Very Conservative - always understates performance
- Should be limited to work packages that start and finish in a single accounting period



Percent Start/Percent Finish EV Technique (50/50) (25/75) (80/20)

- Objective technique tied to start and finish milestones
- BCWS & BCWP Start Percent tied to work package start milestone
- BCWS & BCWP Finish Percent tied to work package finish milestone
- Overstates performance in first half of period of performance; understates performance in last half of period of performance
- Should be limited to work packages that start and finish within two consecutive accounting periods



Percent Complete EV Technique

- Subjective technique not preferred for Government EVMS contracts
- CAM estimates % of work scheduled to be completed at the beginning of the accounting period for the BCWS variable
- CAM estimates percentage of work completed at the end of the accounting period for the BCWP variable
- For example, if the manager estimates 60% of the cable has been installed based on total footage, then 60% of the BCWS is recorded as BCWP.
- Technique is as good or bad as the estimator



Weighted Milestone EV Technique

- Preferred Objective Technique
- Appropriate for longer term discrete tasks
- At least one measurable milestone should be scheduled in each reporting period
- Budgets allocated according to resource requirements needed to achieve milestones
- BCWS tied to milestone schedule
- BCWP tied to milestone completion



Apportioned Effort EV Technique

- General or supportive activities associated with a discrete effort
- Not to be used with LOE or other Apportioned Effort accounts
- BCWS based on a percent of the discrete effort's budget and schedule
- BCWP dependent on (or related to) the performance of discrete effort

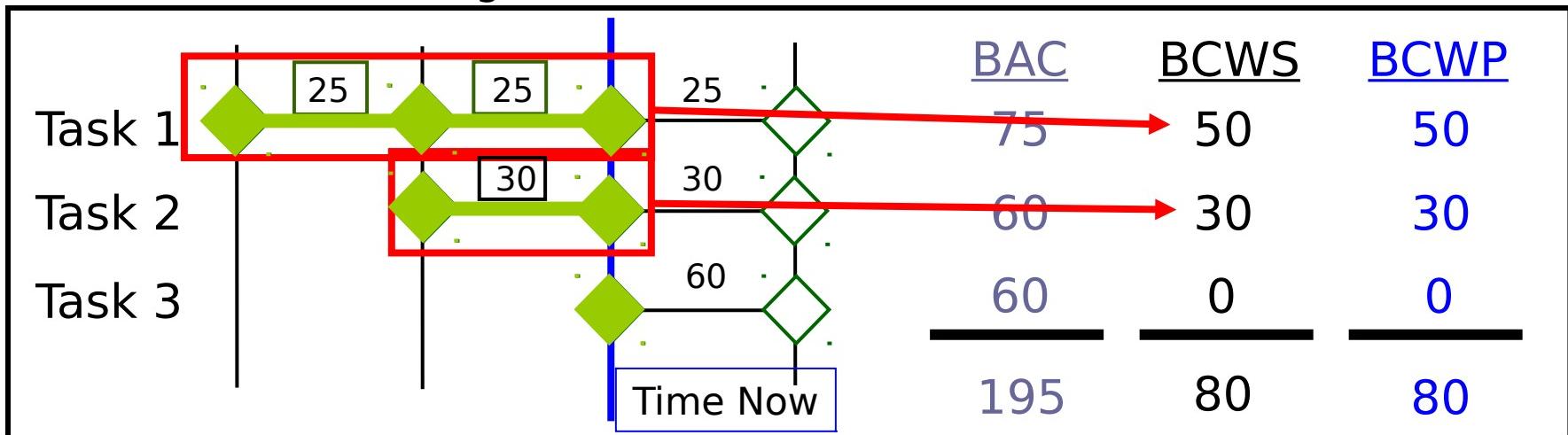
• Apportioned effort is more desirable than Level of Effort but less desirable than discrete EV techniques

account	May	June	July	Total
Production Control Account BCWS	200	500	100	800
Quality Assurance Control Account BCWS	20	50	10	80
Production Control Account BCWP	150	250	400	800
Quality Assurance Control Account BCWP	15	25	40	80

BCWP

- Subjective least desirable EV technique
- Appropriate only for general or supportive activities
- BCWS determined by spreading budget over the scheduled period of performance
- BCWP earned based on passage of time
- BCWP always equals BCWS
- No maximum acceptable amount of LOE
- LOE should be kept to a minimum and its use justify

Program Control - Control Account Plan





PMB Analysis: EV Charts

- **Why** - To determine that the PMB is current and that the contractor is “*using earned value to manage*” and not “*managing the earned value data*”.
- **What** - Assess the CPR baseline data to ensure that contract modifications are incorporated, that the PMB is updated to address cost and schedule variances and that PMB adjustments have not invalidated earned value metrics.
- **How**
 - CPR Format Three Review → Identify PMB Changes
 - CPR Format Five Review → Contractor explains PMB changes
 - wInsight Level 1: EAC Chart & Six Period Summary
 - wInsight UB: EAC Chart & Six Period Summary
 - wInsight PMB: EAC Chart & Six Period Summary
 - wInsight MR: EAC Chart & Six Period Summary
 - Single Point Adjustments and Over-Target Baselines
 - Has the PMB been maintained and does it accurately reflect program and contract status?

Similar analysis can be done with programs other than wInsight

Format 3 Review

- CPR's can be printed from wInsight administrator

1. Format 3 Box 5 Contract Data - IMPORTANT

- Lists all negotiated & authorized contract mods
- List the value of Over Target Baselines
- Lists contractor's estimated completion date
- Should correlate with Contract P0000 Status

2. Format 3 Box 6 Performance Data (15), & (16)

- (15) Undistributed Budget (should be zero)
- (16) Shifts in Total Budget - can only come from OTB, MR or new work

3. Format 3 Box 7 - Management Reserve

Unclassified CLASSIFICATION (When filled in)															
COST PERFORMANCE REPORT FORMAT 3 - BASELINE															
DOLLARS IN Thousands															
Page 1 of 1															
1. CONTRACTOR		2. CONTRACT		3. PROGRAM		4. REPORT PERIOD									
a. NAME Increda, Corp.		a. NAME LAR DEC 2003		a. NAME LAR Vehicle											
b. LOCATION (Address and ZIP Code) 1100 W. HOLLYMOLLY ST. LOS ANGELES, CA 90293		b. NUMBER DAAH01-03-C-0076		d. SHARE RATIO CP1F 50/50 30/70		a. FROM (YYMMDD) 031129									
												b. PHASE (X one) RDT&E		b. TO (YYMMDD) 031231	
5. CONTRACT DATA		a. ORIGINAL NEGOTIATED COST \$64,711.5		c. CURRENT NEGOTIATED COST (a. + b.) \$64,711.5		d. ESTIMATED COST OF AUTHORIZED UNPRICED WORK \$0.0		e. CONTRACT BUDGET BASE (c. + d.) \$64,711.5		f. TOTAL ALLOCATED BUDGET \$64,711.5		g. DIFFERENCE (e. - f.) \$0.0			
														h. CONTRACT START DATE (YYMMDD) 030602	
6. PERFORMANCE DATA		ITEM	BCWS CUMUL- ATIVE TO DATE	BCWS FOR REPORT PERIOD	BUDGETED COST FOR WORK SCHEDULED (BCWS) (Non-Cumulative) SIX PERIOD FORECAST								UNDIS- TRIBUTED BUDGET	TOTAL BUDGET	
					JAN	FEB	MAR	APR	MAY	JUN	FY04	FY05			TC
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
a. PERFORMANCE MEASUREMENT BASELINE (Beginning of Period)	9,295.0	2,095.5	1,742.3	1,793.8	1,800.8	1,762.5	1,803.7	1,830.1	5,202.2	20,452.3	0.0	0.0	15,679.8	0.0	63,457.5
b. BASELINE CHANGES AUTHORIZED DURING REPORT PERIOD															
c. PERFORMANCE MEASUREMENT BASELINE (End of Period)	11,346.3		2,224.5	1,777.3	1,757.4	1,750.4	1,777.4	1,775.0	5,408.2	19,626.5	0.0	0.0	15,996.1	0.0	63,439.1
7. MANAGEMENT RESERVE															1,272.3
8. TOTAL															64,711.4

Unclassified
CLASSIFICATION (When filled in)

1 →

2

3 →

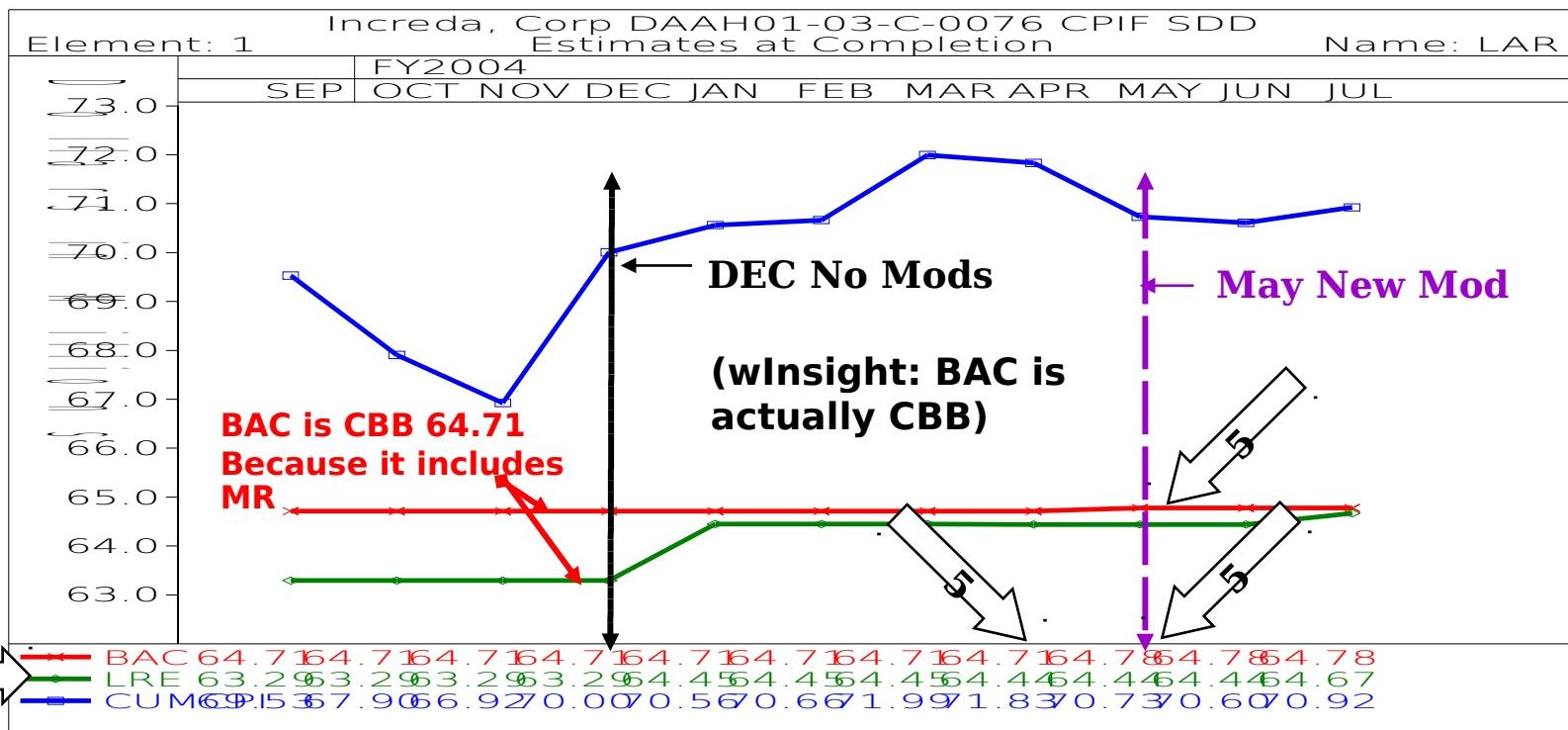
Format 5 Review

- CPR reports can be printed from wInsight administrator
- Format 5 - CPR DID Requires PM to Address:
 - Contractor's EAC
 - Undistributed Budget
 - Management Reserve Changes
 - Baseline Changes
 - Staffing Level Changes
 - Formal Reprogramming (over Target Baselines)
 - Authorization & Reason for Change
 - Schedule
 - Over Target Schedule

CLASSIFICATION (If authorized to)						Form Approved GME No. 0704-0-088	
COST PERFORMANCE REPORT FORMAT 5 - EXPLANATIONS AND PROBLEM ANALYSES							
This public reporting burden for this collection of information is estimated to average 200 hours per response, including time for reviewing instructions, reading existing data sources, searching for additional data sources, gathering and maintaining the data needed, and completing and reviewing the information. The burden estimate includes the time for one full-time equivalent employee to respond. This burden does not include the time spent by other individuals in support of the reporting burden (e.g., supervisor and administrative personnel) or the time spent by employees to develop and maintain the underlying data sources. The Office of Management and Budget (OMB) has determined that this collection of information is not subject to review under OMB Circular A-21. If you have comments concerning this burden estimate or requests additional information about the collection of information or if it does not display a currently valid OMB control number, PLEASE DO NOT RETURN YOUR FORM TO THIS ADDRESS. SUBMIT COMPLETED FORMS IN ACCORDANCE WITH CONTRACTUAL REQUIREMENTS.							
1. CONTRACTOR		2. CONTRACT		3. PROGRAM		4. REPORT PERIOD	
a. NAME		a. NAME		a. NAME		a. FROM (YYYYMMDD)	
b. LOCATION (Address and ZIP Code)		b. NUMBER				b. TO (YYYYMMDD)	
		c. TYPE	d. SHARE RATIO				
5. EVALUATION							
10.2.6 <u>Format 5 - Explanations and Problem Analyses</u> : 10.2.6.1 <u>General</u> . Format 5, Explanations and Problem Analyses, is a narrative report prepared to supplement the other CPR formats. Format 5 will normally address 1) contractually required cost, schedule and estimate at completion variance analyses, 2) management reserve changes and usage, 3) undistributed budget contents, 4) differences between the best case, worst case, and most likely management estimate at completion, if any, 5) the difference between the most likely management estimate at completion and the estimate in Block 8.e of Column 15, if any, 6) significant differences between beginning of period PMB time phasing and end of period PMB time phasing in Format 3, 7) performance measurement milestones that are inconsistent with contractual milestones (Over Target Schedule), 8) formal reprogramming (Over Target Baseline) implementation details, and 9) significant staffing estimate changes in Format 4. However, any topic relevant to contract cost, schedule or technical performance can be addressed in this format. 10.2.6.4 <u>Other Analyses</u> . In addition to variance explanations, the following analyses are mandatory: 10.2.6.4.1 <u>Management Estimate at Completion</u> . If the best or worst case management estimates at completion differ from the most likely estimate, the contractor must provide a brief explanation of the difference. Also, if the most likely management estimate at completion differs from the total entered in Column 15 of Format 1 or 2, the contractor must explain the difference. The explanations should focus on such areas as differences in underlying assumptions; a knowledgeable, realistic risk assessment; projected use of management reserve; estimate for undistributed budget; and higher management knowledge of current or future contract conditions. 10.2.6.4.2 <u>Undistributed Budget</u> . Identify the effort to which the undistributed budget applies. Also, explain any variance between the undistributed budget and the estimate for undistributed budget in Formats 1 and 2. 10.2.6.4.3 <u>Management Reserve Changes</u> . Identify the sources and uses of management reserve changes during the reporting period. For management reserve uses, identify the WBS and organizational elements to which applied, and the reasons for application. 10.2.6.4.4 <u>Baseline Changes</u> . Explain reasons for significant shifts in time-phasing of the PMB shown on Format 3. 10.2.6.4.5 <u>Staffing Level Changes</u> . Explain significant changes in the total staffing estimate at completion shown on Format 4. Also, explain reasons for significant shifts in time-phasing of planned staffing. 10.2.6.5 <u>Formal Reprogramming (Over Target Baseline)</u> . If the difference shown in Block 5.g on Format 3 becomes a negative value or changes in value, provide information on the following: 10.2.6.5.1 <u>Authorization</u> . Procuring activity authorization for the baseline change which resulted in negative value or change. 10.2.6.5.2 <u>Reason</u> . A discussion of the reason(s) for the change. 10.2.6.5.3 <u>CPR Reporting</u> . A discussion of how the change affected CPR reporting (i.e., amount allocated to management reserve, adjustments to cost or schedule variances, etc.). 10.2.6.5.4 <u>Schedule</u> . Indicate whether the contact schedule was retained for performance measurement or was replaced with a schedule that exceeds the contractual schedule (Over Target Schedule). 10.2.6.6 <u>Over Target Schedule</u> . If a performance measurementschedule exceeding the contractual schedule (Over Target Schedule) has been implemented, provide a discussion of the pertinent information, such as authorization, reasons and significant dates.							

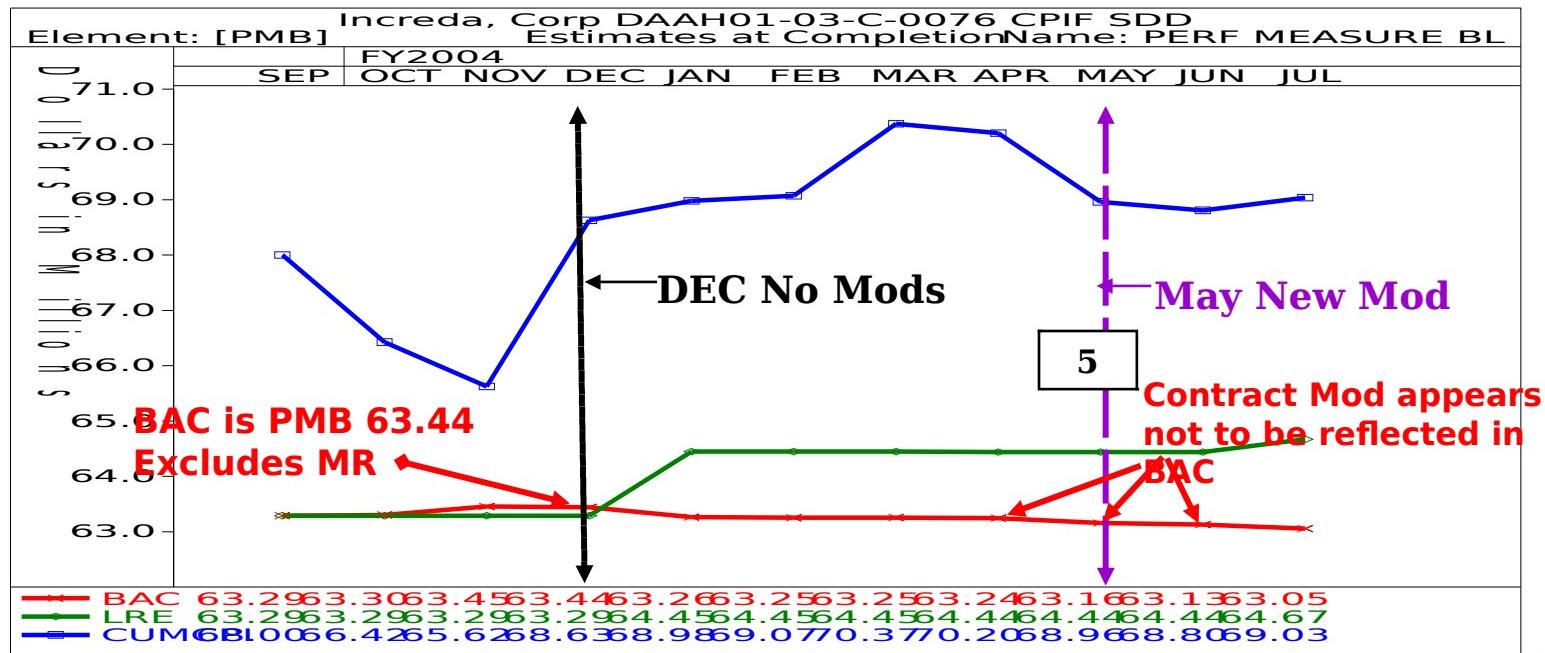
Level 1EAC Chart

1. Has the Contract Budget Base Changed?
2. wInsight, Contract Level EAC Chart will tell you.
3. WBS Level 1 > Double Click Program Level, Select Charts, EAC. Make sure that you are at Program Level (Status Bar must read highest program level)
4. Unique to wInsight, BAC is CBB because it includes MR. wInsight assumes MR will be consumed. EAC calculations use CBB instead of BAC.
5. At contract level small changes not obvious.

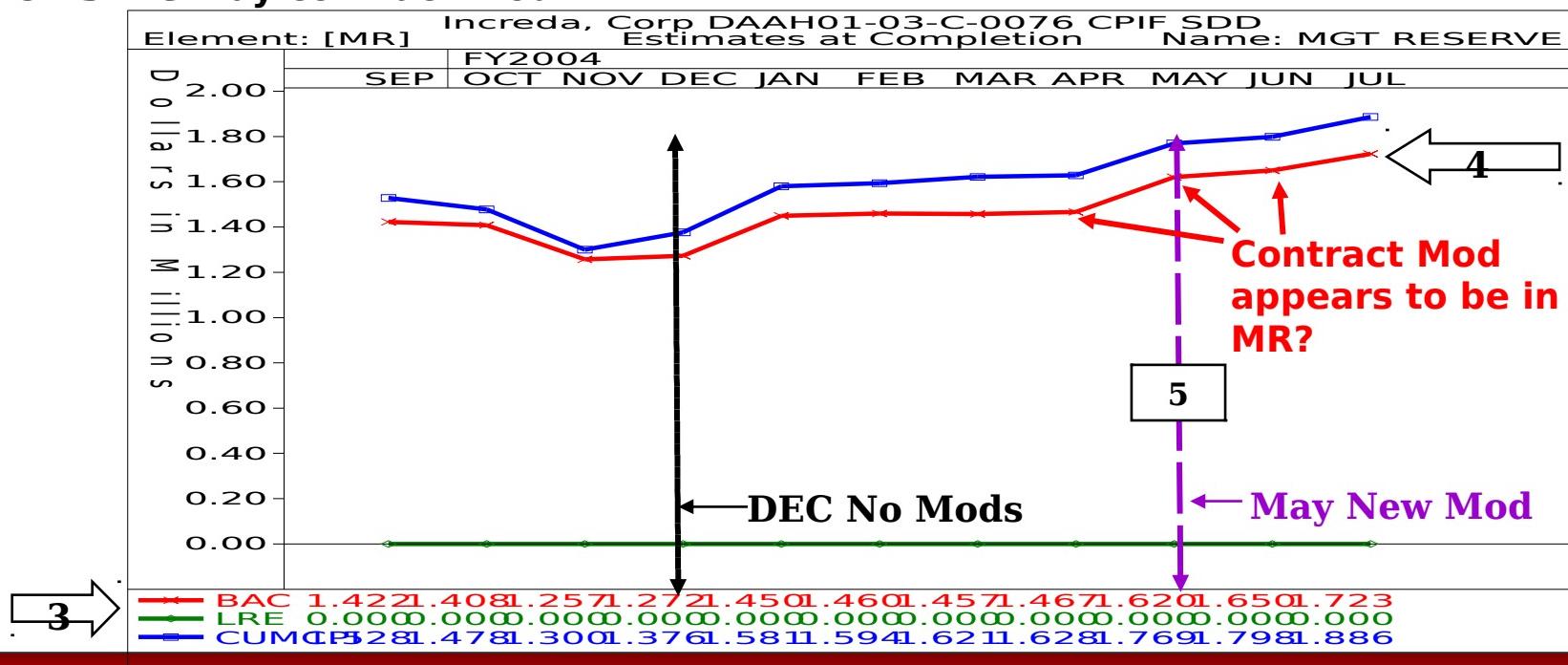


PMB EAC Chart

1. Review the Performance Measurement Baseline (PMB)
2. From SORT WINDOW, Scroll to the bottom of the SORT WINDOW, Double Click on PERF MEASURE BL. (Check Status Bar.) Now all charts/reports will be for PMB. Select Charts, EAC
3. In this chart “BAC” represents the current PMB.
4. If a contractor is using EVM to manage, we expect the PMB line to change month to month. (Rolling Wave, Contract Modifications, MR)
5. May contract mod does not appear to be reflected in the PMB. Where's the money?



1. wInsight, MR EAC Chart shows the movement of money in and out of MR.
2. From SORT WINDOW, Scroll to the bottom of the SORT WINDOW until you see MGT RESERVE. Double Click on MGT RESERVE (Management Reserve - MR). (Check Status Bar.) Select Chart, Select EAC.
3. In this chart “BAC” represents the remaining MR.
4. If a contractor is using EVM to manage, we expect the MR line to change month to month. (Subcontracts, Negotiations, Rolling Wave, Unknown - Unknowns)
5. Is the May contract mod in MR?





Level 1 Six Period Summary

Six Period Summary - Work Breakdown Structure (Dollars)						
As of: JUL 04		Financial Analyst: A Cukr Contract Manager: P I Smith Project Officer: P I Smith Office Symbol:				
PERIOD	FEB 04	MAR 04	APR 04	MAY 04	JUN 04	JUL 04
<u>Current Period Data</u>						
BCWS	2,142.7	2,363.8	2,022.0	4,395.2	2,206.7	1,800.5
BCWP	2,039.0	1,930.7	2,157.2	3,121.5	1,930.1	2,633.4
ACWP	2,246.8	2,449.0	2,352.9	3,068.9	2,061.3	2,999.5
SCH VAR	-103.7	-433.1	135.2	-1,273.7	-276.6	832.9
SCH VAR %	-4.84	-18.32	6.69	-28.98	-12.53	46.26
SPI	0.952	0.817	1.067	0.710	0.875	1.463
COST VAR	-207.8	-518.3	-195.7	52.6	-131.2	-366.1
COST VAR %	-10.19	-26.85	-9.07	1.69	-6.80	-13.90
CPI	0.908	0.788	0.917	1.017	0.936	0.878
<u>Cumulative-to-Date Data</u>						
BCWS	15,713.5	18,077.3	20,099.3	24,494.5	26,701.2	28,501.7
BCWP	14,680.5	16,611.2	18,768.4	21,889.9	23,820.0	26,453.4
ACWP	16,020.2	18,470.2	20,922.2	22,001.1	25,062.4	28,061.0
SCH VAR						
SCH VAR %						
SPI						
COST VAR						
COST VAR %						

Small Contract Mods More Obvious in Six Period Summary

	0.916	0.899	0.901	0.916	0.917	0.913
<u>Completion Data</u>						
TCPI-BAC	1.028	1.040	1.047	1.049	1.055	1.070
TCPI-EAC	1.033	1.046	1.054	1.057	1.064	1.073
BAC	64,711.5	64,711.5	64,711.5	64,776.9	64,776.9	64,776.9
EAC	64,447.0	64,447.0	64,438.2	64,478.7	64,438.0	64,668.7
VAC	264.5	264.5	273.3	298.2	338.9	108.2
VAC %	0.41	0.41	0.42	0.46	0.52	0.17
% SCHD	24.28	27.94	31.06	37.81	41.22	44.00
% COMP	22.69	25.67	29.00	33.79	36.77	40.84
% SPENT	24.77	28.56	32.19	36.90	40.08	44.71
<u>Statistical and Independent Forecasts</u>						
3 PER AVG	74,598.9	74,259.2	73,687.5	70,722.6	68,477.7	69,503.0
6 PER AVG	70,661.4	72,866.8	73,444.1	72,289.2	70,848.2	71,077.0
CUM CPI	70,661.4	71,989.0	71,827.3	70,728.5	70,603.0	70,919.5
CUR CPI	71,160.1	79,492.2	70,943.2	66,065.4	69,703.4	72,613.2
COST & SCH	70,116.2	71,400.5	70,914.2	71,302.6	71,229.3	70,983.5
LINEAR REG	72,036.7	73,060.0	73,206.0	72,373.9	71,826.2	71,625.5
PERFFACTOR	66,061.3	66,579.6	66,775.3	66,788.1	66,919.3	67,285.4
USER EAC	0.0	0.0	0.0	0.0	0.0	0.0
CPI*SPI	74,505.5	76,711.7	75,443.4	76,300.3	76,002.6	74,168.3
MICOMEAC	64,711.5	77,667.0	77,174.9	78,046.7	76,277.4	74,338.0
JPO EAC	74,641.0	74,641.0	74,641.0	74,641.0	74,641.0	74,641.0

Notes

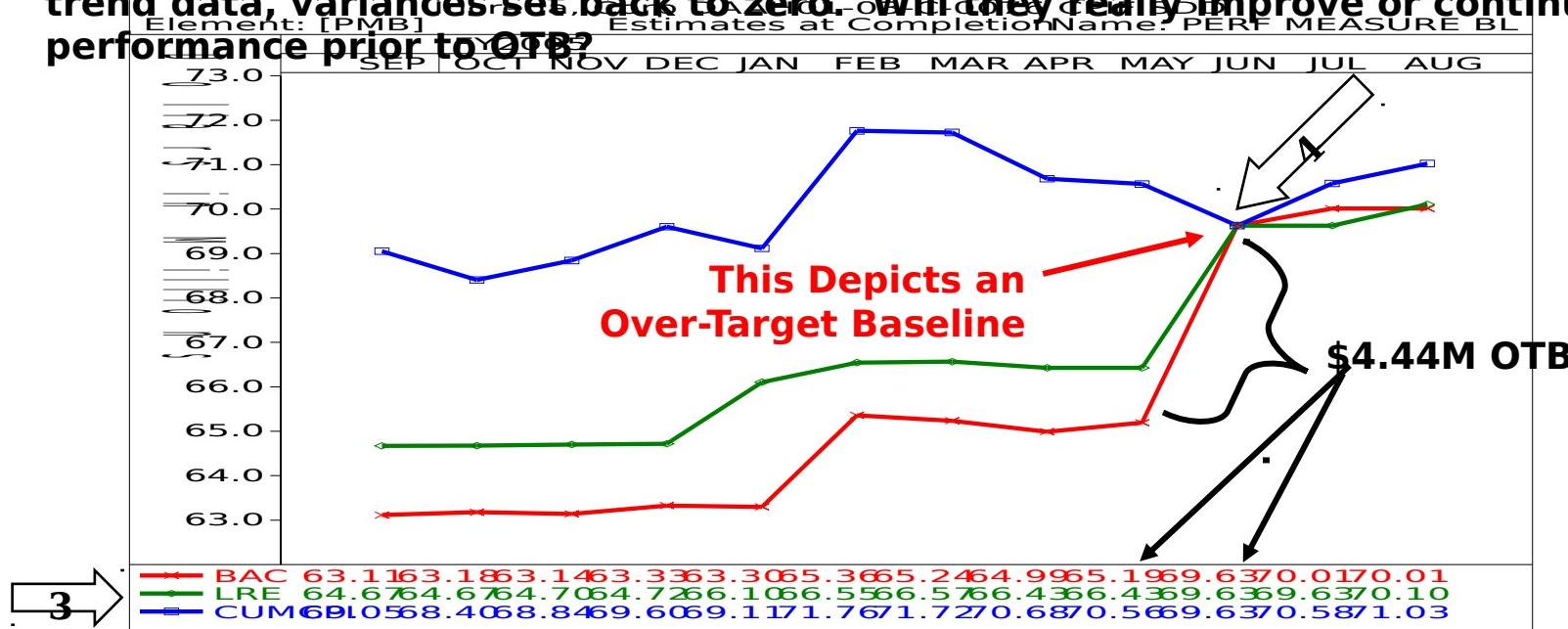
Weighted VAR: Cost = 50.0% Schedule = 50.0% Performance Factor = 1.00

Forecasts are generated independently for each level.

MIR and UB use level 1 performance data (i.e. CPI, SPI) to generate forecasts.

PMB Over Target Baseline EAC Chart

1. Review the Performance Measurement Baseline (PMB)
2. From SORT WINDOW, Scroll to the bottom of the SORT WINDOW Double Click on PERIOD MEASURE BL. (Check Status Bar.) Now all charts/reports will be for PMB. Select Charts, EAC
3. In this chart “BAC” represents the current PMB.
4. In June 2005, an Over Target Baseline is established. BCWP and BCWS are set equal to ACWP. \$4.44M is added to the PMB to complete the work. Zeroing the variances results in LRE, BAC and CPI _{cum} convergence.
5. If an OTB exists, EV metrics must be evaluated in the context of the OTB—no trend data, variances set back to zero. Will they really improve or continue performance prior to OTB?





EVMS Training and References



DAU Acquisition Community Connection

Screenshot of the DAU Acquisition Community Connection website:

Address: https://acc.dau.mil/evm

DAU Resources

Sign In

User Name: _____
Password: _____
Sign In
Request an Account
Benefit of Membership
Forgot My Password or Login

Community Explorer

- EVM (Earned Value Management)
 - DoD EVM Policy & Guidance
 - EVM Community Connection
 - EVM Contract Documents
 - EVM Research Library
 - EVM Tools
 - EVM Training Center
 - OMB Recommended References

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Defense Acquisition University

Acquisition Community Connection
Where the DoD AT&L Workforce Meets to Share Knowledge

EVM (Earned Value Management) Community

User Reviews

Main View Discussions What's New Activity

2 contributions at this community | Search Knowledge in this Community

https://acc.dau.mil/evm

The diagram shows a central world map with a yellow arrow pointing from the bottom left towards the top right, labeled "TIME". Surrounding the map are various icons and text labels representing different resources and tools:

- Contract Documents**: Represented by a document icon.
- Note Board**: Represented by a notepad icon.
- Research Library**: Represented by a book icon.
- OMB Recommended References**: Represented by a stack of books icon.
- DoD Policy & Guidance**: Represented by a gear icon.
- Tools**: Represented by a wrench icon.
- Training Center**: Represented by a person icon.
- Community Connection**: Represented by a group of people icon.



EVMS Training—DAU Continuous Learning Modules

All	CLB	CLC	CLE	CLG	CLI	CLL	CLM	FAC	SPS	External
	Course Name									
<u>CLB014</u>	Acquisition Reporting Concepts and Policy Requirements for APB, DAES, and SAR									
<u>CLB020</u>	Baseline Maintenance									
<u>CLB011</u>	Budget Policy									
<u>CLB010</u>	Congressional Enactment									
<u>CLB007</u>	Cost Analysis									
<u>CLB024</u>	Cost Risk Analysis Introduction									
<u>CLB012</u>	Cost as an Independent Variable									
<u>CLB018</u>	Earned Value and Financial Management Reports									
<u>CLB019</u>	Estimate at Completion									
<u>CLB016</u>	Introduction to Earned Value Management									
<u>CLB017</u>	Performance Measurement Baseline									
<u>CLB009</u>	Planning, Programming, Budgeting, and Execution (PPBE) and Budget Exhibits									
<u>CLB008</u>	Program Execution									
<u>CLB023</u>	Software Cost Estimating									

<https://learn.dau.mil/html/clc/Clc1.jsp?cl=1>



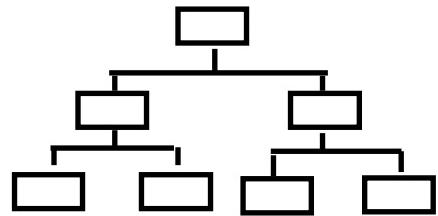
EVMS Tailored Training

- DAU can provide targeted training
 - Tailored to specific organization needs
 - Part of our Consulting/Performance Support efforts
- Potential Topics
 - Integrated Baseline Review Workshop
 - Program Startup Workshop
 - EVMS Basics/Intermediate
 - Scheduling Basics/Intermediate
 - Source Selection
- For More Info, Contact: Professor Kim Meyer
 - 937-781-1040, kimberly.meyer@dau.mil



- BACKUPS

Step 1. Define the Work Scope



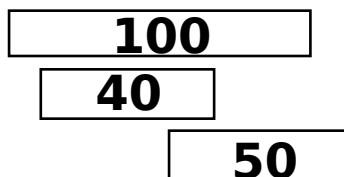
- Identify the scope of work
 - Plan the work at the control account / work package level

Step 2. Schedule the Work



- Arrange the work packages in order
- Schedule work packages

Step 3. Allocate Budgets to Schedule



- Classify the work and select an EV technique
- Budget the work packages
- Spread the budget over time
- Calculate cumulative EVs

- **Organization**

Define contractual effort & assign responsibility for work

- **Planning and Budgeting**

Plan, schedule, budget, and authorize the work

- **Accounting**

Accumulate costs of work, labor, and material

- **Analysis**

Compare planned/ accomplished /actuals and analyze variances

- **Revisions**

Incorporate changes and develop estimate of final cost



EV Terms

Element	Description	Meaning
TAB	The <u>Total Allocated Budget</u> is the sum of all budgets allocated to the performance of the contractual effort. The amount shown will include all management reserves, authorized unpriced work, over-target baselines and undistributed AuW or OTBs . <u>Negotiated Contract Cost</u> is the cumulative cost (excluding fee or profit) for the original contract and all negotiated contract changes which have occurred since the beginning of the contract . This is equal to the total allocated budget when there is no AuW or OTBs.	Budget for all Contractual Work
NCC	<u>Authorized unpriced work</u> is the estimated cost (excluding fee or profit) for contract changes that have been approved by the government but they are still negotiated.	Contract Negotiated Cost
AUW	<u>Contract Budget Base</u> is the sum of the negotiated contract cost and the authorized unpriced work budgets. It equals the total allocated budget when there is no OTB.	Estimated Costs for contract modifications being negotiated
CBB	An <u>Over Target Baseline</u> is the sum of the contract budget baseline and any additional budgets that exceed the contractual cost objectives for the contract. The total allocated budget is equal to the over target baseline.	Contract Target Cost
OTB		Managerial contract cost recovery plan

PMB	<p>The <u>Performance Measurement Baseline</u> is the sum of all summary level planning packages, control accounts and undistributed budgets. It does not include management reserve.</p>	Time phased budget baseline
SLPP	<p><u>Summary level planning package</u> is a high level holding account for budget that is identified to specific work scope elements and is time-phased for interim resource planning. It will eventually be allocated to control accounts.</p>	High level holding account
CA	<p>The <u>Control Account</u> is the earned value mgt control point at which budgets and actual costs are accumulated. Control account budgets include the budgets for work packages (near term) and planning packages (far term).</p>	EVMS management account
UB	<p><u>Undistributed Budget</u> is associated with broadly defined work scope or contract changes that have not been assigned to a control account or SLPP. Undistributed Budgets are not time-phased for resource planning purposes.</p>	Unplanned Work
MR	<p><u>Management Reserve</u> is an amount of the total budget withheld for management control purposes rather than being designate for the accomplishment of a specific task or a set of tasks. Management Reserve is not included in the performance measurement baseline.</p>	Risk Management Budget



EV Terms

Element	Description	Meaning
PP	Planning Packages are the far term control account activities not yet defined into detailed work packages	Less detailed control account plans
WP	Work Packages are the near-term, detailed planned activities within a control account. Usually covers planning for a 6-month rolling wave period, or until the next major program milestone.	Detailed Plans
RW	Rolling wave is the term	High level holding account
UB	Undistributed Budget is associated with broadly defined work scope or contract changes that have not been assigned to a control account or summary level planning package. Undistributed Budgets are not time-phased for resource planning purposes.	Unplanned Work



Weighted Milestone with Percent Complete EV Technique

- Part subjective & part objective technique similar to weighted milestones but with fewer intermediate milestones
- Less desirable than weighted milestones for longer period tasks
- BCWS based on scheduled milestones plus CAM's estimated completion percentage for next milestone
- BCWP based on completed milestones plus CAM's estimated actual percent completed for next milestone
- A milestone at least every other reporting period recommended
- Technique is as good or bad as the estimator



Integrated Master Schedule (IMS)

Significant Accomplishments

Criteria

Event

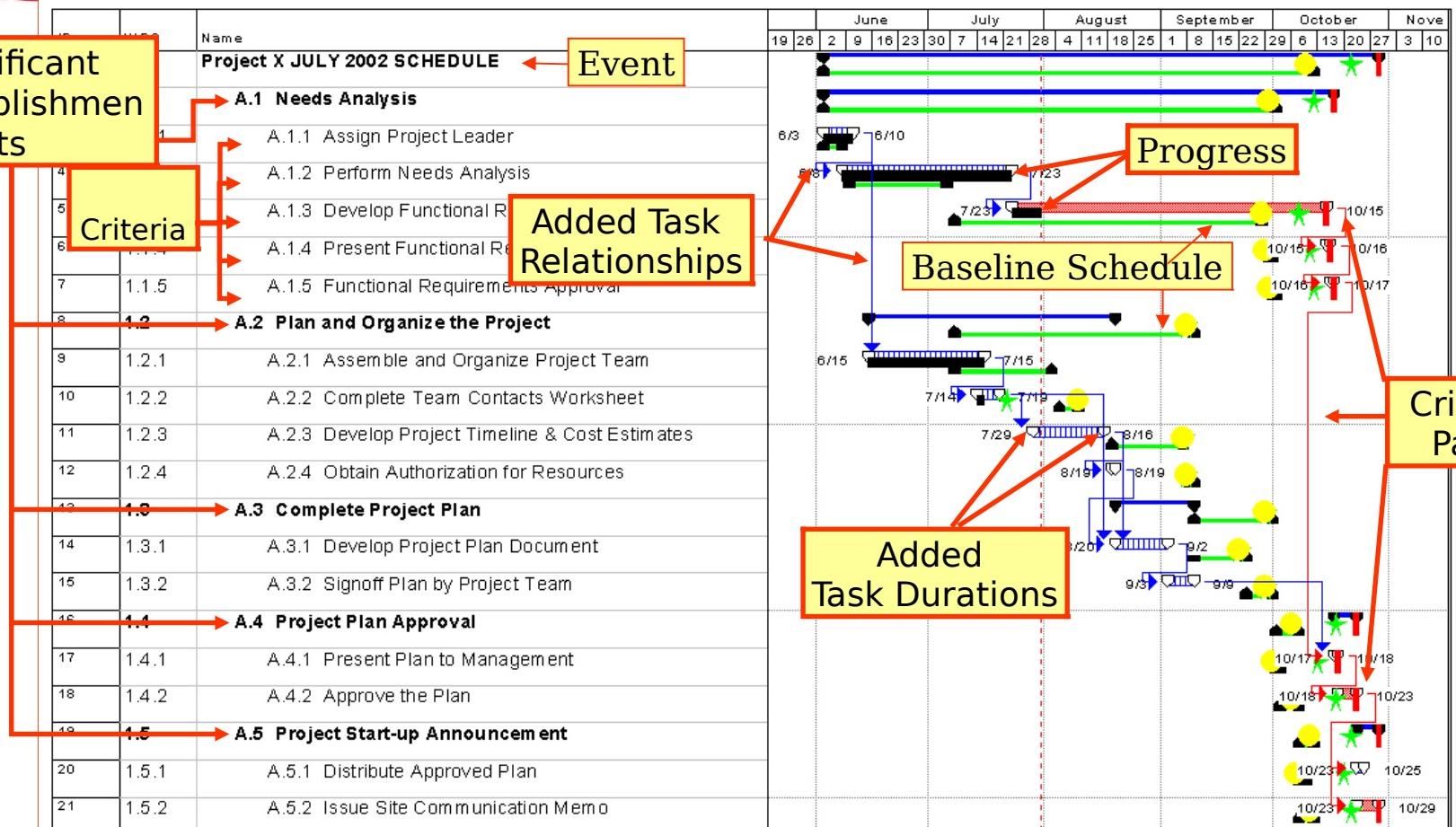
Added Task Relationships

Progress

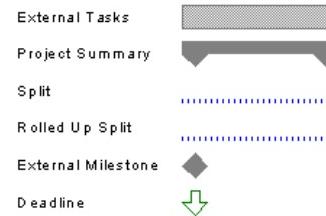
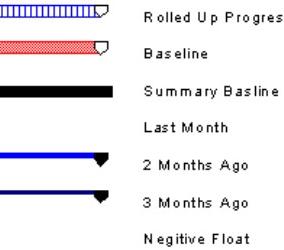
Baseline Schedule

Critical Path

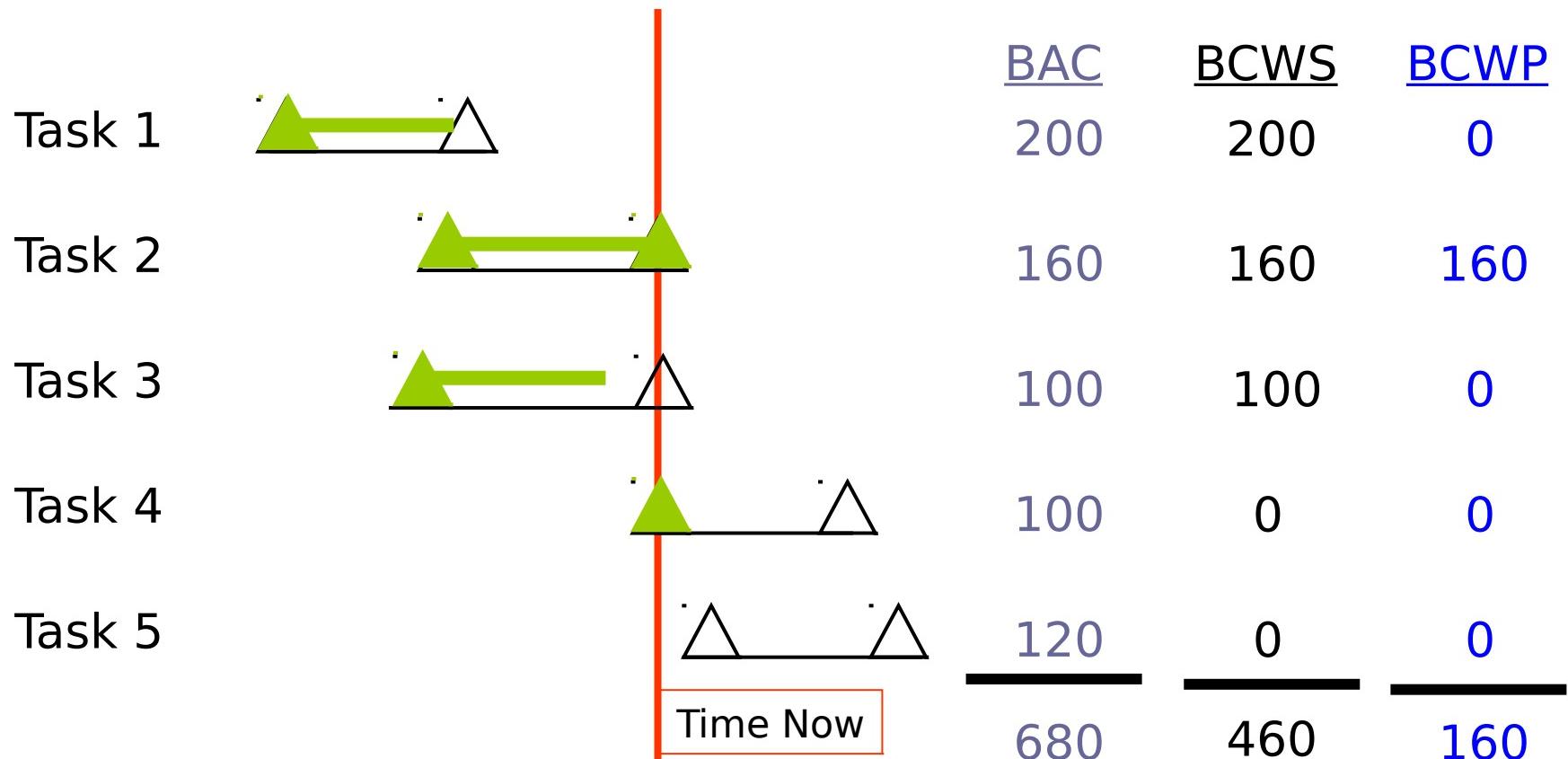
Added Task Durations



Project X
July 2002 Schedule
AS OF: 31 July 2002



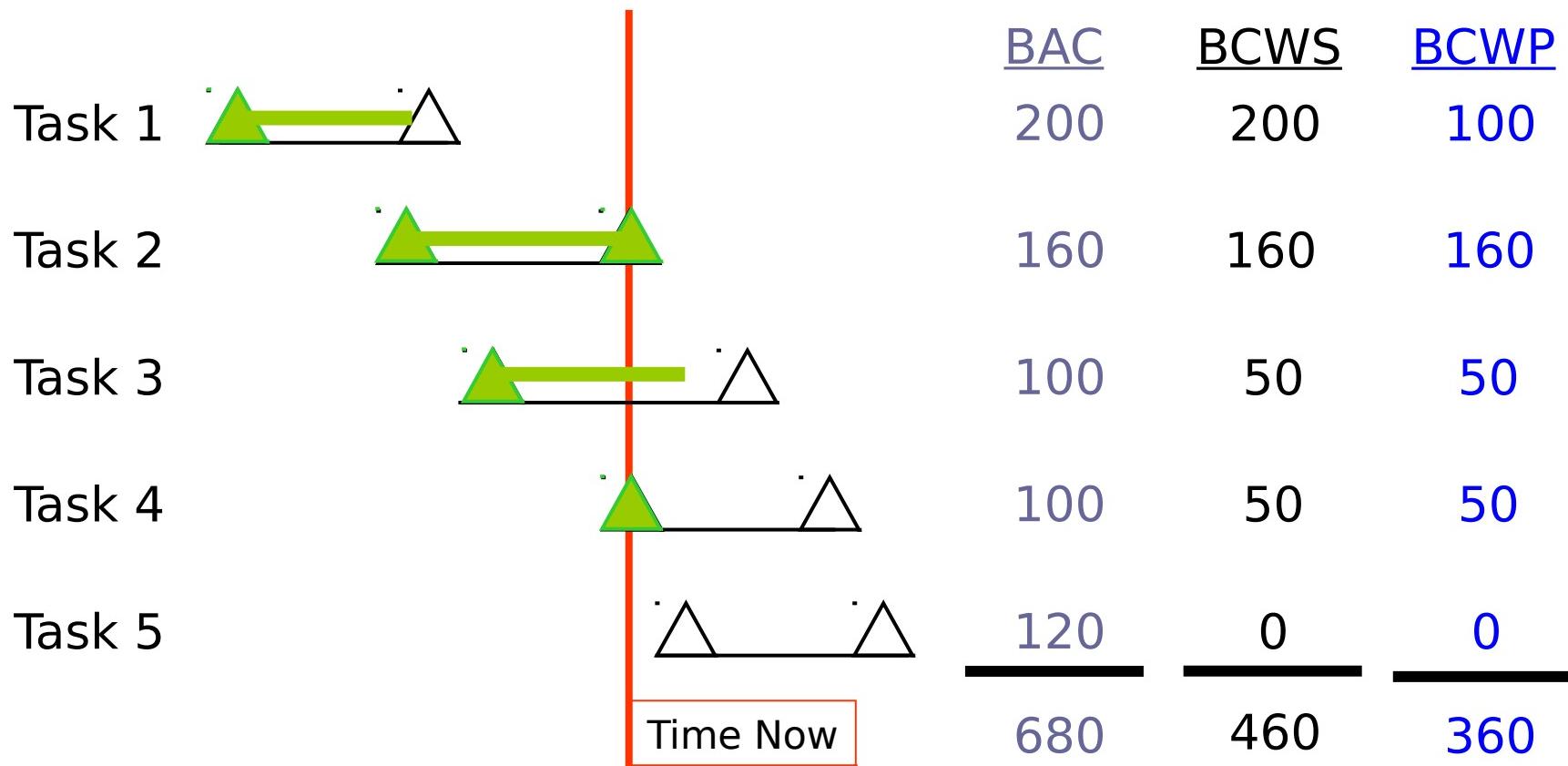
0/100 Earned Value Technique



△ Scheduled Milestone

▲ Started or Finished Milestone

Percent Start/Percent Finish (50/50)



 Scheduled Milestone  Started or Finished Milestone

Percent Complete EV Technique

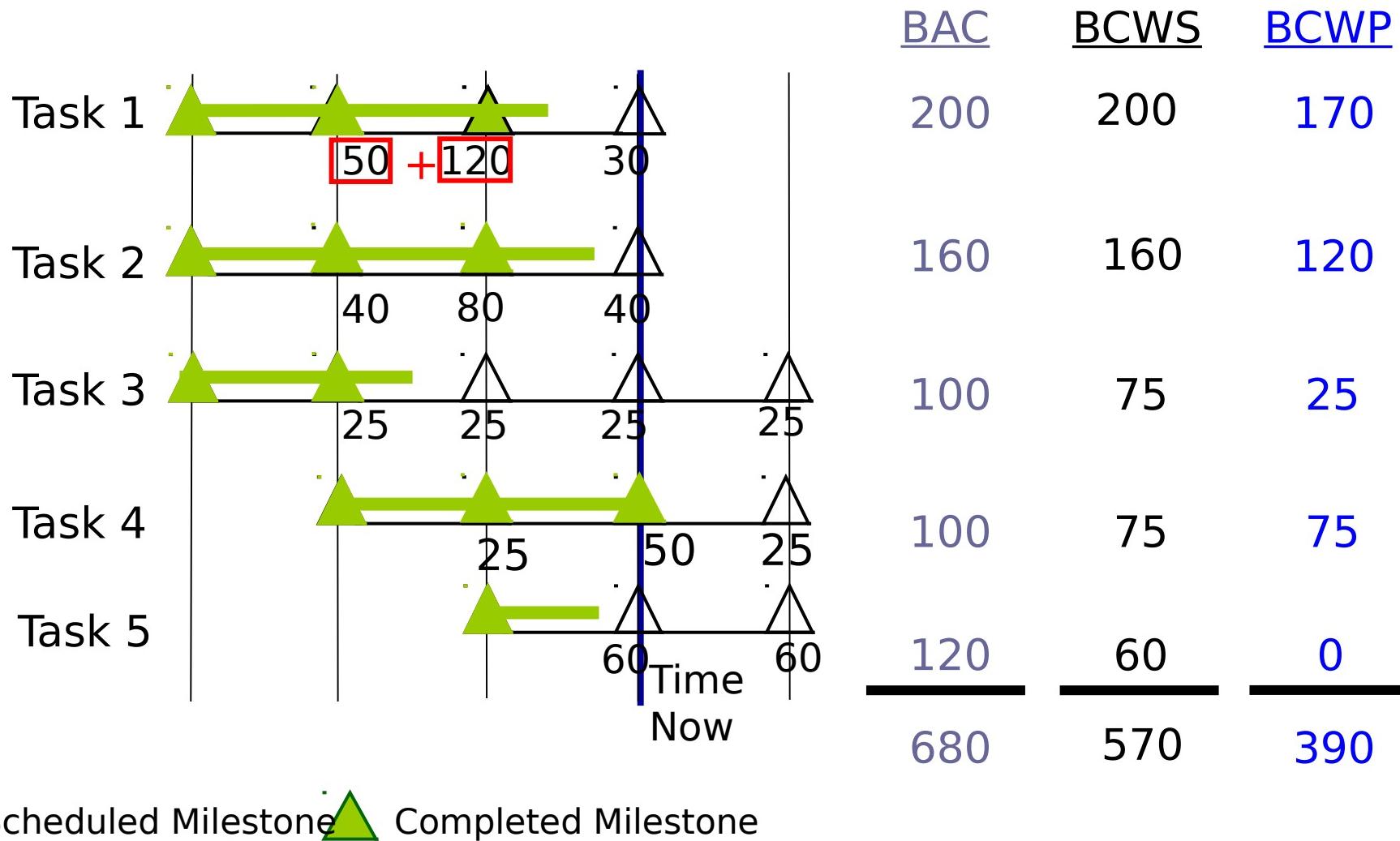
		<u>Est % Planned</u>	<u>Est % Completed</u>	
	BAC	BCWS	BCWP	
Task 1	200	90%	180	95% 190
Task 2	160	80%	128	80% 128
Task 3	100	60%	60	50% 50
Task 4	100	40%	40	50% 50
Task 5	120	20%	24	0% 0
	680	432	418	

Time Now

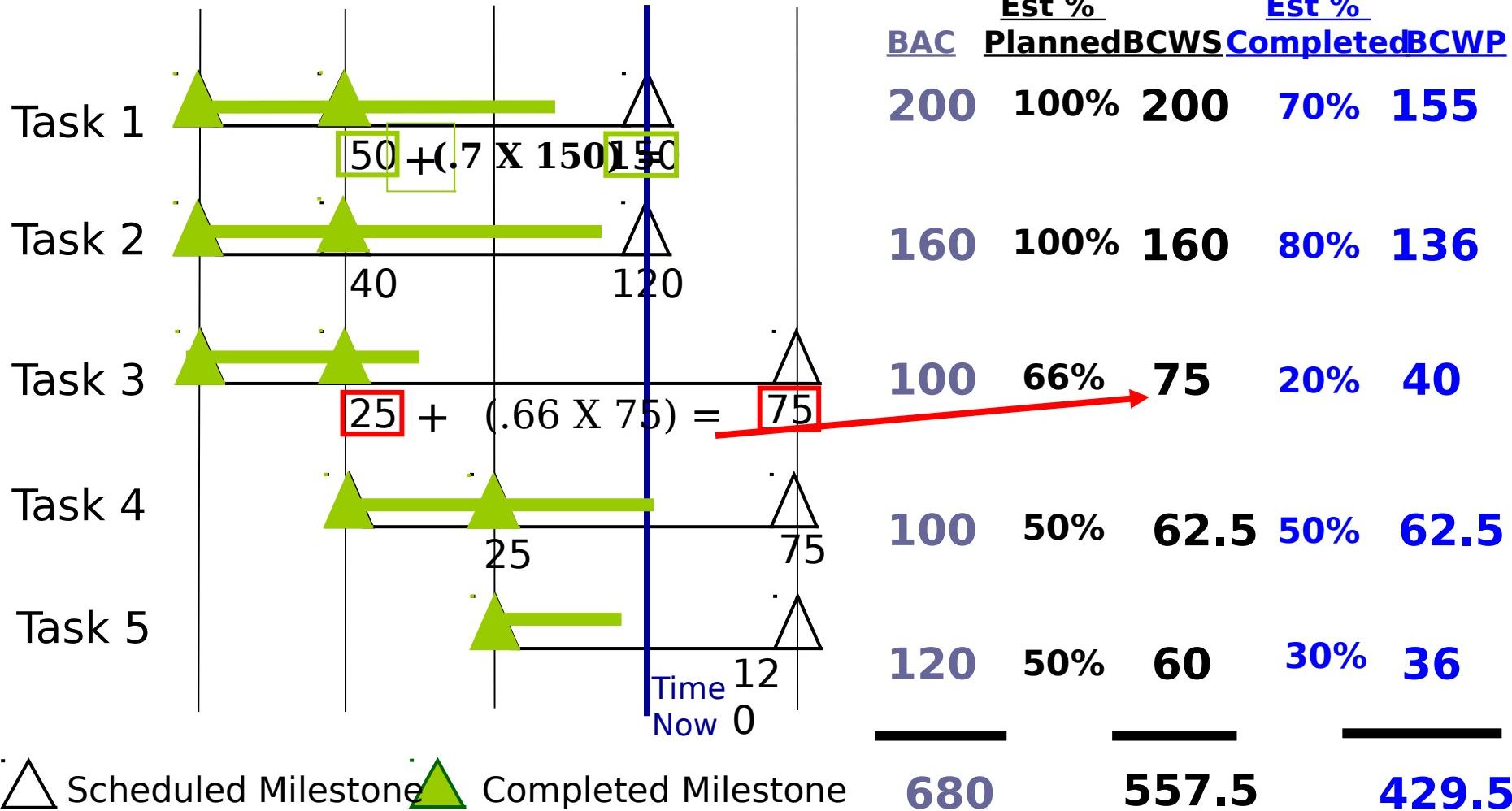
△ Scheduled Milestone

▲ Started or Finished Milestone

Weighted Milestone EV Technique



Weighted Milestone with Percent Complete EV Technique



Units Completed EV Technique

- Simple Objective Technique
 - Appropriate for continuous flow processes
 - BCWS based on units planned
 - BCWP based on units produced
- Hydraulic Tubing Manufacturing Control

Month	Account	Jan	Feb	Mar	Apr	Total
Planned Production		1,500 Ft	2,000 Ft	2,200 Ft	1,000 Ft	6,700 Ft
	BCWS @ \$100 / Ft	\$150,000	\$200,000	\$220,000	\$100,000	\$670,000
Actual Production		1,000 Ft	2,000 Ft	2,000 Ft	1,700 Ft	6,700 Ft
	BCWP @ \$100 / Ft	\$100,000	\$200,000	\$200,000	\$170,000	\$670,000

- Usually Significant Portion Of Contract Effort

- **Material**

- EV: Taken No Earlier Than Receipt

Define

Order (Open Commitment On CFSR)

Receipt

Payment

To Inventory

Usage

- Match EV To Payment Period
 - Or Use Estimated Actuals To Avoid Cost Variance
 - Ensure Accurate Planning, Cost Accumulation, Price And Usage Variance (IBR Process)

- Subcontract

- Single Lump Sum Payment (FFP)
 - Milestone Payments (FFP)
 - Progress Payments (FFP, FPI)
 - CPR Or Other Reports (Cost Reimbursement)



ACC Included References

Department of Defense

Earned Value Management Implementation Guide



October 2006

EVMIG

Signed

KEITH D. ERNST
Director,
Defense Contract Management Agency



National Defense Industrial Association (NDIA)
Program Management Systems Committee (PMSC)
Earned Value Management Systems
Intent Guide

Intent Guide

November 2006 Edition

EVMS

The Program Managers' Guide to the Integrated Baseline Review Process

April 2003

[https://acc.dau.mil/
evm](https://acc.dau.mil/evm)

- DoD Policy
- OMB
- Recommended
References

Integrated Master Plan and Integrated Master Schedule
Preparation and Use Guide



Version 0.9
October 21, 2005



EVMS Training—ACC EVMS CoP

- + EVM Community Connection
- + EVM Contract Documents
- + EVM Research Library
- + EVM Tools
- + EVM Training Center
- + OMB Recommended References

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ACC Practice Center Version 1.6

Highlighted Contributions

[Earned Value Special Topic # 2 - Revised DoD EVM Policy - Mar 05](#) - by Private

Unavailable writes: ... Thu, Jun 15, 2006 9:41 PM

[DAU Gold Card - December 2006](#) - by Private

Unavailable writes: ... Thu, Jun 15, 2006 9:41 PM

[Fundamentals of EV module 1 - Basics - Updated Mar 05](#) - by Private

Unavailable writes: ... Thu, Jun 15, 2006 9:41 PM

Contributions

Name	File	Contributor	Modified	Type
DAU Gold Card - December 2006	1 file	Private	1-Dec-2006 1:28 PM	References
Earned Value Special Topic # 1 - DAU Integrated Program Management Model	1 file	Private	23-Sep-2005 1:41 PM	Learning Materials
Earned Value Special Topic # 2 - Revised DoD EVM Policy - Mar 05	1 file	Private	23-Sep-2005 2:59 PM	Learning Materials
Fundamentals of EV module 1 - Basics - Updated Mar 05	1 file	Private	30-Jun-2006 10:48 AM	Learning Materials
Fundamentals of EV module 2 - PMB	1 file	Private	27-Jun-2006 8:33 AM	Learning Materials
Fundamentals of EV module 3 - Reports - Updated Feb 05	1 file	Private	23-Feb-2005 11:23 AM	Learning Materials
Fundamentals of EV module 4 - EAC	1 file	Private	5-Oct-2004 1:02 PM	Learning Materials
Fundamentals of EV module 5 - Baseline Maintenance	1 file	Private	5-Oct-2004 1:03 PM	Learning Materials
Over Target Baseline (OTB) & Over Target Schedule (OTS) Handbook	1 file	Private	12-May-2005 10:02 AM	References

Other Related Contributions